Early Rearing Success
Crappie spp. and Channel Catfish
(E.3.1-5, Chapter 2)

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I. Introduction

The purpose of the early rearing success study was to determine what factors influence survival of small mouth bass, crappie and channel catfish once they have hatched and entered the reservoir water column. The early rearing success study extended from 1992 through 1998.

II. Conclusions

1. "Over the course of this study, larval fish collections fluctuated. Such fluctuation is often the case with crappie populations, which appear to cycle every 3 to 5 years (Swingle and Swingle 1967). Peak catches occurred in 1994 and 1997, with the highest catches in 1997, corresponding to the highest January reservoir storage level during the study."…. "The fact that crappie year-class strength does not appear to be set in the larval stage suggests that other factors influence year-class strength." (Page 13, Paragraph 1)

"•Larval crappie catch densities are correlated to reservoir storage in January.
•Larval crappie catch densities are negatively correlated to yearly nest densities.
•Larval channel catfish catch densities are correlated to Brownlee Reservoir inflows in May.
•Larval crappie growth did not differ significantly between weeks within years.
•Larval growth differed between years for crappie and channel catfish.
•Survival did not differ significantly between weeks or years." (Page 14, Paragraph 1)

Response: The study findings suggest that the researchers could not specifically determine what factors control crappie production from year-to-year.

III. Study Adequacy

The BLM finds this study to be only partially adequate. "The study objective was to determine the impacts of reservoir operations, including water-level fluctuations, on community structure. These impacts potentially include (see 1.1. objectives item 3) *"...changes in the early rearing success of resident fish (bass, crappie, and catfish)..."*. The study only partially addresses this issue. The findings provide some correlations that may account for early rearing success but do not provide a clear set of findings to guide

reservoir management in a way that would ensure survival rates of these early life stages. Smallmouth bass were not addressed in this report even though early rearing success of smallmouth bass appears to be one of the objectives. On page 5, paragraph 2, it states *"Because young smallmouth bass were not susceptible to open-water tows. We used a slurp gun (8.9-cm mouth) to collect smallmouth bass larvae observed during SCUBA surveys (see Chapter 1 of this report for information on random-site selection)."* However, no data or analysis from that work is mentioned in the rest of this report and chapter 1 does not address the issue of early rearing success for smallmouth bass.

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IV. BLM Conclusions and Recommendations

Conclusions

The research on the early rearing success was scientifically credible. However, the study objectives appear to have been too large in scope to yield answers. Many questions remain concerning factors that influence the survival of each year class. This problem is not unique to the Hells Canyon Complex. Other research studies across the country are cited that also had difficulty defining factors that control population levels.

The hydrologic-year variability combined with reservoir operations was found to affected crappie survival. Other unknown factors also affect survival from year to year. This report provides valid information that can be used to develop a plan to manage crappie and channel catfish. The research indicates that nesting success does not always correlate with successful year classes.

Recommendations

Idaho Power should utilize the findings of this study to develop a warmwater fish plan. Public use of National Resource Lands managed by BLM along the HCC is strongly correlated to high populations of catfish, crappie, and bass. A management plan for reservoir operations that produces strong populations of warmwater fish is supported by the BLM.